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Learning to match: user–producer integration and blending in the probiotic *Gefilus* innovation process

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Abstract: The notions of user involvement and user orientation have become popular catchphrases in innovation research and practice. Central in this research are the ideas that knowledge about users leads to better design, and that the interests of users and producers need to be aligned. In another field of research, scholars have long recognised the significance of metaphors for integrative pursuits. However, to date these two literatures have not been combined into an integrated framework. Producing such a framework for understanding the process of interest alignment is the main task of this paper. Illustrating the framework with a recent probiotic innovation process, this paper argues that *learning to match* type of boundary – syntactic, semantic and pragmatic – faced between users and producers with type of capability is crucial for bringing about successful user–producer integration. This paper also argues that *learning to blend* forms a central part of the semantic capability.

Keywords: user–producer integration; interest alignment; metaphor; blending; learning; probiotic innovation.

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Biographical notes: Nina Janasik is a PhD student at the Aalto University School of Engineering, finalising her dissertation on cognitive and pragmatic aspects of domesticating functional food innovations. Her current work at the University of Helsinki focuses on innovative environmental regulation in the form of a case study on integration of facts and values in expert deliberation over environmental monitoring in the Baltic Sea. She holds an MA degree in philosophy from the University of Helsinki in Finland.

1 Introduction

The notions of user involvement and user orientation have become popular catchphrases in innovation research and practice (von Hippel, 2005; Heiskanen and Repo, 2007; Heiskanen et al., 2010; Hyysalo, 2010). A central contention in the research on the interactions between users and producers is that increased knowledge about users leads to better design (e.g. von Hippel, 2005; Heiskanen et al., 2010). Linked to this idea is also the consensus that in order for an innovative product or technology to succeed, the

interests and needs of producers or designers and users need in one way or another to be ‘aligned’ (e.g. Hanna et al., 1995; Heiskanen et al., 2010). Reflecting these two contentions, a plethora of methods or ‘tools’ for user involvement and alignment has emerged (Beyer and Holtzblatt, 1998; Riquelme, 2001; Dix et al., 2004).

In another line of research, scholars have since long recognised the significance of metaphors for various kinds of integrative human pursuits (Lakoff and Johnson, 1980, 1999; Lakoff, 1987; Fauconnier and Turner, 2002; Cornelissen et al., 2008). The word ‘metaphor’ is derived from the Greek ‘*metapherein*’ where meaning is carried over, or transferred, from one concept to another (Fillis and Rentschler, 2008). Within marketing research, metaphors are argued to being capable of, among other things, renewing marketing theory (Hunt and Menon, 1995); bridging the gap between marketing academics and marketing practitioners (Fillis and Rentschler, 2008) and aligning the often highly different understandings of producers and consumers by using ‘deep’ rather than ‘superficial’ metaphors (Zaltman and Zaltman, 2009).

To date, however, these two literatures have not been explicitly combined into an integrated framework that would shed light on the more precise ways in which the pragmatic interests of users and producers are aligned by means of, among other things, metaphors.

Producing an integrated framework for understanding the complex process of interest alignment is the main task of this paper. Drawing on recent insights from research on boundary objects in organisational work (Carlile, 2004), this paper argues that interest alignment is to be understood as a tripartite integration process involving three distinct yet interrelated dimensions:

- 1 a *pragmatic* dimension concentrating on the integration of the results users and producers wish to achieve with their respective actions
- 2 a *semantic* dimension concentrating on the integration of the meanings and understandings of the respective parties
- 3 a *syntactic* dimension concentrating on all the things these two parties already have in common (Carlile, 2004).

Furthermore, this paper argues that the semantic dimension would benefit from being conceptualised in terms of the theory of conceptual blending. This perspective is claimed to be the generic process of arriving at any novelty in the human mind (Fauconnier and Turner, 2002). Thus, this paper proposes that blending can function as a *semantic tool* for the alignment of meanings and understandings as part of the overall process of user–producer interest alignment. It will be argued that the tool is generalisable to similar cases on both empirical and theoretical grounds.

The process of innovation relating to the Gefilus innovation since the 1990s is particularly appropriate for studying these issues because of the problems the producer, the Finnish dairy company Valio, encountered in aligning user–producer interests. At first, the company’s functional food and probiotic products had little success, but became successful later on. The tripartite framework of interest alignment developed in this paper helps explain why the first three marketing campaigns failed as attempts of aligning the interests of producers and as well as why the fourth and last marketing campaign was successful. In short, the company learned, by an extended process of trial and error, to address this particular alignment challenge not as a mere problem of syntax or semantics, but as one involving *all three* dimensions of the interest alignment process.

Data presented in this paper result from a study of the integration of knowledge in functional food innovation processes. It is based on 22 semi-structured and selectively described interviews collected during 2003–2004, complemented with further interviews collected in 2005 and 2009–2010 ($n = 5$). The average length of interviews was 90 minutes. Additional documentary data consist of a comprehensive set of LGG advertisements produced for the company, as well as other LGG-related documents. The advertisement data span the period 1990–2004. Moreover, company marketing data for the period 1995–1997 were analysed. This shows the real usage of the LGG products. Marketing research reports on Gefilus produced for Valio in 1988–1997 were also analysed.

2 Theoretical background

In a recent paper, Chesbrough (2003) has characterised the current era as being one of ‘open innovation’. Whereas companies previously innovated strictly within the confines of their own company and especially R&D departments, today’s world is characterised by fluid boundaries across academia, industry and government. This also goes for the biotechnology industry, of which functional food innovations form a part (2003, p.37). Companies producing functional food innovations typically figure as *innovation marketers*, whose defining attributes are their keen ability to profitably market ideas, both their own and others’, based on a deep understanding of the current and potential needs in the market (2003, p.40). For innovation marketers, understanding the behaviours, interests and understandings of consumers or users is critically important.

2.1 The user–producer literature

2.1.1 User involvement and user orientation

The significance of users for innovation has been recognised for decades (Bijker et al., 1987; von Hippel, 1988; Heiskanen et al., 2007). However, it has been claimed that more often than not, the images of the user that are influential in the process of developing new products and technologies are mainly the result of the designers’ own experiences and their beliefs about the users to be (e.g. Heiskanen et al., 2007). Indeed, recent decades have shown an increasing recognition of the fact that “the ‘user’ is a complex idea”; there are many different kinds of users, and they can have various degrees of participation in the creative process (Hyysalo, 2010, p.20).

Reflecting the growing insights about the complexity of user–producer relations, frameworks have been devised that aim at taking those complexities into account (for an overview, see Hyysalo, 2010). All these frameworks share the central contention that increased knowledge about users leads to better design (Hanna et al., 1995; von Hippel, 2005; Heiskanen et al., 2010; Hyysalo, 2010), and linked to this idea, the contention that in order for an innovative product or technology to succeed, the interests and needs of producers or designers and users need to be ‘aligned’ (e.g. Jeppesen, 2005; Heiskanen et al., 2010). Empirical studies show that there is no pre-existing alignment between users’ and producers’ interests (e.g. Heiskanen et al., 2010; Pantzar and Shove, 2010). However, these frameworks do not explicitly address metaphoric alignment.

The literature on demand-oriented innovation processes also widely shares these beliefs. A high degree of customer orientation in innovation projects – as exemplified by market-oriented activities such as the generation of marketing intelligence, the dissemination of information across the organisation and organisation-wide responsiveness to this information – is believed to result in new products that better suit customer preferences and needs and will be better adopted by the target market (Salomo et al., 2003).

2.1.2 User involvement in biotechnology and functional food product innovation

In contrast to many other fields, biotechnology commercialisation contains a number of idiosyncratic traits, such as a division of labour between new technology-based firms and large established pharmaceutical companies; ‘learning before doing’ in the research laboratory and tight link of biotechnology industry to basic science (Lehrer and Akasawa, 2003). Main challenges identified for biotechnology transfer and commercialisation are cultural and informational barriers among the key stakeholders; bureaucratic inflexibility; poorly designed reward systems and ineffective management of university technology transfers (Siegel et al., 2004).

Some of the same challenges are also present for the biotechnology sub-set of functional foods. However, there are challenges that are highly idiosyncratic to this sub-set of biotechnology, such as the costs of product development and marketing; the broad knowledge base needed for this kind of endeavour; the need for highly visible information and communication activities to consumers and opinion leaders; the current regulatory situation separating food from medicine and the price premia for this type of food compared with conventional foods (Menrad, 2003). In general, the development and commerce of these products is complex, expensive and risky due to the need to take into account potential technological obstacles, complex legislative aspects as well as consumer demands (Lagnevik et al., 2003; Siró et al., 2008).

Furthermore, for functional foods the market development is strongly influenced by the degree of familiarity with and acceptance by consumers. As a result, the acceptance of a functional ingredient is linked to the *consumers’ knowledge* of the health effects of that ingredient (Siró et al., 2008). For pioneering companies opening a specific marketing segment, targeted information activities to consumers and opinion leaders are regarded as success factors in the marketing of functional food (Siró et al., 2008). Also, examples of successful information campaigns indicate that the health message of a new product should be communicated in a manner that consumers can easily comprehend; consumers need to understand the benefits, not the ‘science’ behind the product (Menrad, 2003; Siró et al., 2008).

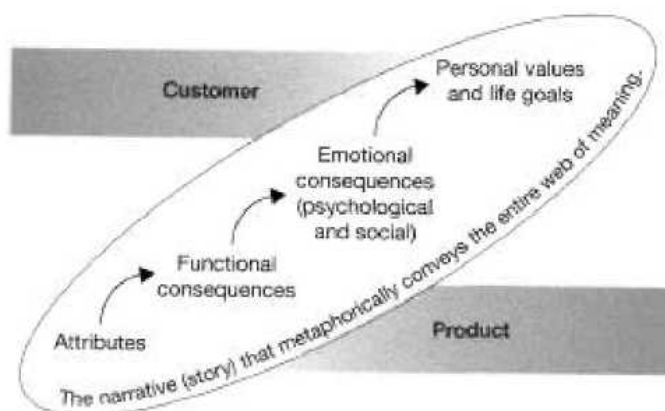
2.1.3 Methods and tools of alignment

Against this background, it is not surprising that heavy emphasis has come to be laid on the methods and tools through which product designers get access to the requested knowledge of their users. Hyysalo (2010, pp.12–13) has grouped the methods into five categories:

- 1 explicit requirements-gathering techniques, such as market or customer research
- 2 involvement of some users either as hired in-firm experts or as participants in consumer panels and user groups

Within marketing research, metaphors are considered capable of renewing marketing theory (Hunt and Menon, 1995; Fillis and Rentschler, 2008); bridging the gap between marketing academics and marketing practitioners (Fillis and Rentschler, 2008) and aligning the often highly different understandings of producers and consumers by using ‘deep’ rather than ‘surface’ metaphors (Zaltman and Zaltman, 2009). Surface metaphors are those that we use in everyday language, while deep metaphors are enduring ways of perceiving things, making sense of what we encounter (2009). According to Zaltman and Zaltman (2009, p.72), deep metaphors hold the promise of enabling managers to “seamlessly integrate product attributes and their functional characteristics with consumers’ social and emotional needs and personal values and goals” (see Figure 2).

Figure 2 Reaching customer values and goals



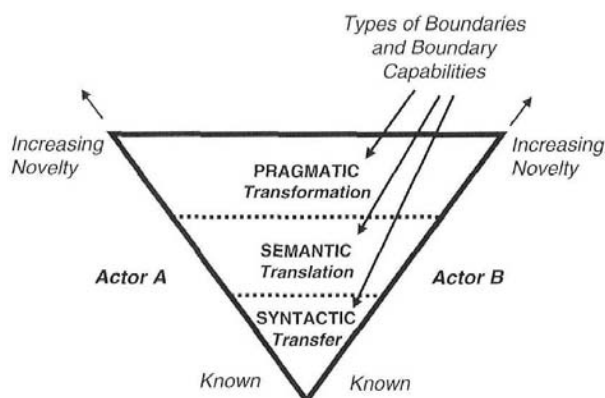
Source: Zaltman and Zaltman (2009)

Recently, Hukkinen (2008) has argued that blending is also the basic technique in the integration of different scientific disciplines. By using exactly the same kind of analogical reasoning, this paper suggests that blending is also the basic technique for aligning the contingent and often – at least on the surface – incommensurable meanings and understandings of users and producers; in other words, that it is a basic *semantic* tool for aligning different meanings and understandings.

2.3 The integrated framework: Carlile’s triangle

There is, however, more to interest alignment than interests and metaphors. In his recent work, Carlile (2002, 2004) has addressed the topic of managing knowledge across boundaries and proposed an integrative framework for managing knowledge across such boundaries especially within the context of new product development and innovation. Carlile (2004) integrates three different perspectives on boundaries – information processing approach, interpretive approach and political approach – to form a framework that describes three progressively complex boundaries. These are called *syntactic, semantic and pragmatic*, and they go together with three progressively complex processes – knowledge *transfer*, knowledge *translation* and knowledge *transformation* (see Figure 3).

Figure 3 The ‘Carlile’s triangle’



Source: Carlile (2004)

At the bottom of the triangle, people working together in some kind of common project face a syntactic boundary, and when knowledge is transferred according to a common lexicon, different kinds of knowledge can be effectively managed across the boundary (Carlile, 2004, p.560). When the knowledge of the other parties becomes increasingly new to each other, a semantic boundary is faced. Here, a process of translating the different kinds of knowledge establishes common meanings that enable successful communication (Carlile, 2004). Finally, if a semantic response does not resolve the problem, a pragmatic boundary is faced. What is then required is negotiating and transforming both the common and the domain-specific knowledge used in the past, based on identification of common interests. It is important that the capacity of common knowledge matches with the type of boundary faced.

This paper suggests that essentially the same conditions that apply to knowledge sharing and assessment also apply to interest alignment in user–producer interaction. In other words, the process of interest alignment deemed necessary for innovations to succeed can be seen as a tripartite integration process involving three distinct yet interrelated dimensions:

- 1 a *pragmatic* dimension concentrating on the integration of the results users and producers wish to achieve with their respective actions
- 2 a *semantic* dimension concentrating on the integration of the meanings of the respective parties
- 3 a *syntactic* dimension concentrating on all the things these two parties already have in common, or, in Carlile's terms, 'the lexicon' (Carlile, 2004).

3 Case analysis: learning to match and learning to blend in the probiotic GEFILUS innovation process

3.1 Background: early development of probiotic products

The history of probiotics ('for life') begins with the Russian scientist and Nobel laureate Elie Metchnikoff, who, working at the Institut Pasteur in Paris at the beginning of the 20th century, proposed that consumption of milk fermented with the lactic acid bacteria

prolongs life by replacing harmful microbes in the gut with more useful ones (Metchnikoff, 1907). The author is usually taken to have opened the field of ‘probiotics’, i.e., ‘a live microbial feed supplement which beneficially affects the host animal by improving its intestinal microbial balance’ (Fuller, 1989), leading to the discovery of one probiotic strain after another.

However, it was not until the discovery of LGG that the claims to beneficial effects could be scientifically verified. This process started in 1985, when a new strain of lactobacilli was discovered by Dr. Sherwood Gorbach and Dr. Barry Goldin in Boston. Since no US company was interested in commercialising the strain, the two doctors turned to Europe. Meanwhile in Helsinki, Finland, Valio was searching for scientific advances. The R&D director soon learned of LGG from a mutual scientific colleague and contacted Gorbach and Goldin. By January 1987, the company had negotiated a licencing agreement with the scientists.

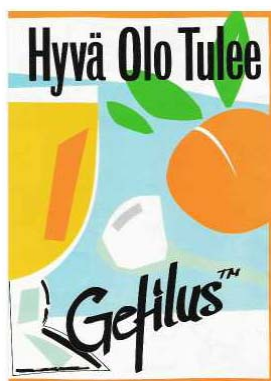
3.2 Attempts at aligning the interests of users and producers in Finland 1990–1995

3.2.1 First attempt: naiveté

Having purchased global rights for the LGG strain in 1987, Valio undertook research into the bacteria and properties relating to its production, while research into its health effects was carried out by an external scientific network. Although highly traditional in products and modes of operation, Valio had longstanding experience in conducting high-quality lactic bacteria research. In 1989, the company initiated expert marketing with symposia and expert brochures on lactobacilli to prepare for the following year’s launch. This kind of ‘expert marketing’ represented a new and proactive approach to health previously unknown in Finland: instead of removing unhealthy ingredients, such as fats, new scientifically proven healthy ones were added to food.

In 1990, the first LGG^{®1} products, a whey drink and a natural set-type² fermented milk product, were launched. Marketing took place in periodical magazines, the advertisements showing a glass of juice next to a yoghurt bowl and the containers of both (see Figure 4). On the top of the advertisement, there was a text stating ‘Good Feeling Comes’. The text next to it stated that Gefilus products ‘bring with them a wholly new way of taking care of one’s well-being’.

Figure 4 The 1990 marketing campaign (see online version for colours)



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Consumer reception was disappointing. Not only were there complaints about the strange consistency and taste of the yoghurt-like product (it could not be called ‘yoghurt’, since it was fermented only with LGG, not with either the strains *bulgaricus* or *thermophilus*), there was also a rather clear lack of consumer understanding of what made it so special.

This predominantly negative judgement is reflected in the marketing research that the company produced around this time. The first qualitative concept testing efforts from the period 1988 to 1990 revealed that the new product was practically indistinguishable from existing fermented products. The conclusion on the fermented milk product was that “its taste and the whole product is psychologically repulsive” (Marketing research report, 1989).³

From the point of view of the integrative framework, a *pragmatic boundary* was addressed by a *syntactic capability* (i.e. the existing code of well-being of ‘feeling good’). That this fundamentally mismatched communication across this particular pragmatic boundary did not succeed is almost painfully clear in a marketing research report from 1991, which concludes that Gefilus products are ‘unknown’ and ‘invisible’ (Marketing research report, 1991). Thus, making (limited) use of the earlier described methods of (a) explicit requirements-gathering techniques together with (b) involvement of some users at this point produced a marketing campaign that emphasised only general well-being (an issue of syntax) and not the fundamentally new idea of functionality (an issue of semantics) that most of the interviewees see as the core of the new way of thinking about food and health.

However, the science behind LGG progressed, as did work on integrating the bacteria into existing yoghurt product lines. In absolute figures, the fermented ‘yoghurt’ sold only 37,850 kg and the whey drink only 238,400 litres (company marketing data). Compared to the whole market, these figures are miniscule. In 1992, after unsuccessful attempts at flavouring the fermented milk drink, this particular effort was deemed misguided.

3.2.2 Second attempt: semantic awakening

In 1992, Finnish consumers again came across a new advertisement, this one called, ‘Velvet for the Belly, Velvet for Life!’ (see Figure 5). During 1992–1994, the central message of these advertisements, which were also broadcast on national television, was that the Gefilus product family, consisting of cultured buttermilk and whey drinks, is beneficial to gut health in many ways. Due to continued scientific progress, it was possible to make general reference to specific health problems, such as traveller’s diarrhoea and gut problems induced by antibiotics; however, claims of a cure were not allowed.

Figure 5 The 1992–1994 marketing campaign (see online version for colours)



The LGG innovation actors were searching for a volume product, and cultured buttermilk was considered a good candidate. Compared with previous products, the results were good indeed: whereas the sale of the whey drink had grown only little in 1992, the new LGG-cultured buttermilk sold 2.4 million litres in 1992, 3 million litres in 1993 and the same amount in 1994 (company marketing data).

However, in the early 1990s, Finland went into a deep economic recession. Also, in the mid-1990s, the changed operating contexts began to pose special challenges for the project in the domestic market. The impending Finnish European Union membership signalled industrial restructurings. In 1992, the former dairy cooperative Valio was restructured and became Valio Ltd. Furthermore, although the buttermilk sold well, the LGG project as a whole was still far from reaching its target. The licence had been expensive and returns were not meeting expectations. The net effect of all these developments was that by 1994 the survival of the LGG project was under threat.

Despite bleak times, two major marketing research studies were performed. The first, a so-called semio-analysis, repeated the problems of unfamiliarity and indistinguishability from other similar products: “The communication of the Gefilus product arguments and brand images has not succeeded” (Marketing research report, 1993). In the second product and concept testing for Gefilus milk, the word ‘functional’ was used for the first time. Together, these two built the basis for the next commercialisation attempt in 1995.

From the point of view of the integrative framework, this second marketing campaign reflects a growing recognition of two things: that improvement along the semantic dimensions is necessary (i.e. that the difference in conceptions of well-being is a *translational* problem, not one of mere transfer), and that there is a need to represent the pragmatic interest in this semantic dimension (i.e. that those interests needs to be visually promoted in the marketing campaign).

However, the image of ‘velvet’ was still too close to existing understandings. So again, the failure of this attempt is clearly readable in the marketing research reports: “Gefilus is perceived of as being an extra double copy at the market, even a ‘cheap copy’” (Marketing research report, 1993). Thus, making (limited) use of the methods of (a) explicit requirements-gathering techniques together with (b) involvement of some users at this point produced a marketing campaign that, compared with the previous one, did emphasise general well-being of the stomach but as of yet still did not stress the core idea of functionality.

From the point of view of blending, however, there is a kind of quantum leap from the first kind of semi-blend of ‘well-being as fruit’ to the image of ‘well-being of the stomach as velvet’: whereas the first cannot even be said to be a blend proper, the second clearly does make a serious effort at formulating the more exact nature of the pragmatic benefit provided to consumers by the new product. In this sense, there is a clear indication of some kind of learning along the semantic dimension, that is, of learning to blend.

3.2.3 *The third attempt: aspect seeing*

In 1995, yet another commercialisation effort attempted to make a breakthrough. This time, Finnish consumers came face to face with an image of an older male playing doctor with a girl (see Figure 6), such a message aimed to underscore the suitability of LGG products for children. Reflecting the search for volume, yoghurts were reintroduced – this time also fermented with typical yoghurt strains. However, it was ‘very hard’ (note made by anonymous Valio employee in company marketing folder) to enter the

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yoghurt market, and sales remained low. In 1995, sales for the whey drink had risen to 0.5 million litres and for cultured buttermilk to 3.1 million litres. The new yoghurt sold a total of 188,480 kg (company marketing data). Familiarity among Finnish consumers also remained low. In 1995, 19% had never heard of Gefilus, 24% had heard of some Gefilus product and 21% had seen a Gefilus advertisement. Only 21% had tasted a Gefilus product, and only 2% of people were using a Gefilus product regularly (Tapionlinna, 1995).

Figure 6 The 1995 marketing campaign (see online version for colours)

Gefilus[®]
Vatsalle hyvinvointia ja vastustuskykyä

Ravinnearvo: 100 g valmistettua sisältää keskimäärin

	Energia kJ/kcal	Proteiini g	Rasvaa g	Hilihydr. g	Kalsiumia mg
Valio jogurtti Gefilus, maustam.	290/70	4,5	3,0	6,0	160 (20 % värtäpeestä)
Valio jogurtti Gefilus, maustettu	380/90	3,5	2,5	13,0	130 (16 % värtäpeestä)
Valio Piiimä Gefilus	170/40	3,4	1,0	4,3	120 (15 % värtäpeestä)
Valio Juoma Gefilus, F-YLA*	220/55	1,5	0,1	11,5	

* F-YLA-tuotteissa laktoosi on alle 1 g/100 g valmistetta

Valiojogurtti Gefilus[®]
Valio Juoma Gefilus[®]
Valio Piiimä Gefilus[®]

KULUTTAJANEUVONTA
Kysy tuotteista ja niiden käytöstä
Valion Kuluttajaneuvonnasta
arkisin klo 12-14 puh. 0800-0825
Internetissä: Kuluttajapalvelu
PL 390, 00101 HELSINKI tai
Automaattinen tilauksen vastaanotto
(24 hvrk) puh. 0800-55-9254 (VALIO) tai

Valion toimipisteistä:
Helsinki (90) 50651/Tuotetiedotus
Riihimäki (914) 7401
Tarkku (921) 261 5711
Lahti (531) 247 0111
Jyväskylä (941) 680 611
Kouvola (027) 325 111
Oulu (981) 557 9111

Maailman tutkituin vatsan hyvinvointia edistävä maitohappobakteeri
Lactobacillus GG

Suomessa vain Valion
Gefilus[®]
-tuotteissa

VALIO

Again, the conclusion from the marketing research efforts during this year is that the product category has not reached the users: “There is disbelief at the level of expressions, effects and needs” (Marketing research report, 1995). The suggestion in this report that advertisements should “include a human, sympathy-awakening element in order to avoid impressions of authoritarianism” (Marketing research report, 1995) is nicely reflected in the warm and cosy ‘Safety by Science’ marketing campaign.

From the point of view of the integrative framework, this third attempt at alignment reflects a growing recognition that the distinctness of the new proactive logic of well-being needs to be represented in the semantic dimension. However, this time the pragmatic dimension of what the product *does* to the consumer when purchased was left out. Again, then, the messages from the marketing research reports are telling: “Gefilus can even be considered a ‘new’ product, since it is hardly known at all” (Marketing research report, 1995). Thus, making (limited) use of the methods of (a) explicit requirements-gathering techniques together with (b) involvement of some users at this point produced a conceptual blend that, compared with the previous one, did emphasise the science behind the new product, but still did not explicitly stress the core idea of functionality. This leaving out of the pragmatic interest is also reflected in the fact that this third marketing campaign contains no metaphorical slogan whatsoever (see Figure 6).

In 1995, Gefilus was joined at the Finnish market by Benecol, a cholesterol-lowering margarine by the Finnish company Raisio. Benecol took off rapidly, and its commercialisation was accompanied by lively public discussions. These developments

made the notion of ‘functional foods’ familiar to Finnish consumers. Meanwhile, within Valio the Gefilus project was given an ultimatum: either the next marketing attempt succeeds or Gefilus will come to its end.

3.2.4 Fourth attempt: breakthrough

In 1995, Laura Luoma, the previous marketing research executive at Valio, returned from a maternity leave and was given responsibility for ‘white milk drinks’ in general and the Gefilus brand in particular. Studies revealed that milk consumption was steadily declining in Finland. From a commercial perspective, this meant that specialty milk products were needed. Gefilus fit into this picture perfectly. The new milk had to taste like plain milk, otherwise the intended user segment would be too small; moreover, children would reject it. Gefilus milk was to act as a ‘locomotive’ for the other products: “If we get the parents to understand this, and there are a lot of gut problems in families with children, then from there it can spread throughout the adult population. ... And I just happened to have three kids, and those before me had none” (Interview 5, p.26).

In March 1996, a large-scale marketing campaign was initiated. A teaser appeared in the Finnish media, saying ‘Now it will come to milk’ and showing a glass of milk against a clear blue background, surrounded by a white, shining ring. It was followed first by the information: ‘Bacteria to the Rescue – clamps down the crooks of your organism’ (see Figure 7), and then by a list of what all the LGG bacterial strain had been scientifically proven to really do, including that it is ‘efficient in preventing and helping to cure diarrhoea’. The marketing campaign was accompanied by active communication towards all identified ‘stakeholders’ in accordance with the marketing philosophy of ‘multi-channelling’ strongly propagated by Laura Luoma.

Figure 7 The 1996 marketing campaign (see online version for colours)



The new marketing effort turned out to be highly successful. Gefilus milk indeed became a ‘locomotive’ and pulled with it especially the cultured buttermilk. In 1996, Gefilus milk sold 2.7 million litres, cultured buttermilk 8.6 million litres, the whey drink 1.9 million litres and the yoghurt 0.6 million kg (company marketing data). In the

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following years, these figures steadily increased at the same proportions. Marketing research showed that the 'total familiarity' of Gefilus products rose from the low figures of 1995 to the remarkable 83% in 1996, 88% in February 1997 and 89% in March 1997 (Marketing Radar, 1997). In addition, studies on consumption conducted for the company showed that the group that hooked on to Gefilus were 'the mother/adult woman of the family' user category: in February 1997, the percentage proportions of adult female/adult male/children users was 40/31/29 respectively for milk, 55/38/8 for cultured buttermilk, 56/15/20 for the whey drink and 43/19/26 for yoghurt (Marketing Radar, 1997).

The success is also reflected in the concept and product testings. In 1994, when the concept of Gefilus milk was first introduced, only 11% ($n = 120$) found the product attractive. In 1995, 46% ($n = 103$) was of the opinion that the product was 'very good' and 42% found it to be 'rather good' (Marketing research report, 1994, 1995). In 1996, the results indicated that 'all who had used Gefilus were content' and that the users had differentiated into three categories:

- 1 those who use the product because it tastes good
- 2 those who find it to be beneficial to the gut generally
- 3 those who use it as a drug in times of illness (Marketing research report, 1996).

The marketing effort divided opinions, however; although most recognised that the metaphor of 'Bacteria to the Rescue' caught the attention of consumers well, many also considered it 'childish' and 'suspect'.

From the point of view of the integrative framework, this last attempt at trying to align the interests of the producers and users of the new Gefilus product represents a 'perfect match' between the type of boundary faced and the type of capability manifested. The final alignment attempt shows *syntactic* capability, since it addresses the basic common code of *well-being* recognised already in the first alignment attempt. It shows a high degree of *semantic* capability, since it produces a high-quality complex metaphor or blend, that of the 'bacteria to the rescue' that in one single glance tells you the essence of the whole new logic of well-being; and finally, while doing so, this metaphor specifically highlights what the new product does for you by way of pragmatic interest: it saves you from illness by means of good, probiotic bacteria.

Here, finally, the knowledge of the actors not only gets *transferred* and *translated*, but also *transformed*: Finnish consumers now modify their previous notions of 'well-being' and 'functional foods' to also include the category of 'probiotic bacteria' with the Gefilus product as its main exemplar.

In this last attempt at alignment, then, the (still limited) use of the methods of (a) explicit requirements-gathering techniques and (b) involvement of some users were combined with the (equally limited) methods of (c) own experiences (of Laura Luoma, mother of three), (d) professional (marketing) experience (of Laura Luoma, strong proponent of multi-channelling), and, last but not least (e) cultural maturation (Benecol) to produce a working complex metaphor that emphasised specifically the idea of functionality, that is, the core of the new way of thinking about food and health. The resources or 'input spaces' provided by the five methods were integrated, mainly by a single creative mind, to form the whole of the final and working blend.

4 Conclusions and discussion

In this paper, the ‘Carlile’s triangle’ has been applied to the literature on user–producer interaction. The emphasis has been on pragmatic interest alignment, on the one hand, and metaphor-based meaning alignment, on the other, to show that the triangle can be used to build an integrative framework. The framework sheds light on the more precise ways in which the pragmatic interests of users and producers are aligned by means of metaphorical processes. Drawing on recent insights from the research on boundary objects in organisational work, this paper has argued that interest alignment can be understood as a tripartite integration process involving three distinct yet interrelated dimensions: syntactic, semantic and pragmatic. This paper has illustrated how the integrative framework was developed and shown how the company learned – albeit after a laborious and time-consuming process of trial and error involving a series of mismatches between the type of boundary and the type of capability – to recognise the significance of *all* the different dimensions of interest alignment.

Furthermore, the theory of conceptual blending was applied to describe the specific content of the semantic dimension. Studies of the semantic dimension would benefit from being conceptualised in terms of blending. The reasons for preferring blending over simple metaphors are twofold. First, blending offers much more resources for discussing differences in quality of the semantic alignment attempts involved. Second, in contrast to ‘pure’ metaphor theory, blending can show precisely *how* the three dimensions of the integrative framework are or are not taken into account in the marketing campaign. Blending can function as a *semantic tool* for the alignment of meanings and understandings as part of the overall process of user–producer interest alignment.

How can this trial-and-error methodology be generalised to similar (or even different) cases? As we have seen, literature on functional food innovation stresses that the development and marketing of innovations crucially involves:

- 1 the need for highly visible and specific information and communication activities to consumers and opinion leaders (Menrad, 2003; Siró et al., 2008)
- 2 the need to communicate the central health message of a new product in a way that consumers can easily comprehend (Menrad, 2003; Siró et al. 2008).

These are requirements that *all* producers of functional food innovations will face, but they are especially critical for pioneering companies opening a specific marketing segment (Siró et al., 2008). Thus, other producers of functional food innovations within this field will encounter *precisely the same requirements of learning to match type and capability* and *learning to blend* as those encountered in this functional food innovation process. Indeed, learning to blend is part and parcel of learning to match. Companies have much to learn from the detailed description of the ways in which this particular pioneering company solved its problems. This is generalisation based on empirically observed similarity across cases.

On a more theoretical note one can argue that the fundamental characteristic of the methodology applied in this paper (i.e. identifying analogical similarities between different domains such as those of Carlile’s knowledge sharing and assessment and the current one of user–producer integration, and the subsequent conceptual blending to form a new argument) *is* precisely generalisability: one generalises when one observes

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analogical similarities. This form could be called generalisation based on an empirically observed process of human cognition, and it is characterised by a process of generalisation through the recognition of similar patterns across different domains (see also Fauconnier and Turner, 2002).

Finally, it is important to note that the purpose of this case is not to *test* the integrative framework for understanding user–producer interest alignment. It is rather to *illustrate* its value in connecting the literature on user–producer interaction with the literature on metaphorical alignment. It is a case with a happy ending: the company finally learned to solve the problem of serious mismatch between the kind of boundary faced and the type of capability used in the alignment process.

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References

- Beyer, H. and Holtzblatt, K. (1998) *Contextual Design: Defining Customer-Centered Systems*, Morgan Kaufmann, San Francisco, CA.
- Bijker, W.E., Hughes, T.P. and Pinch, T. (Eds) (1987) *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, The MIT Press, Cambridge, MA.
- Carlile, P. (2002) ‘A pragmatic view of knowledge and boundaries: boundary objects in new product development’, *Organization Science*, Vol. 13, No. 4, pp.442–455.
- Carlile, P. (2004) ‘Transferring, translating, and transforming: an integrative framework for managing knowledge across boundaries’, *Organization Science*, Vol. 15, No. 5, pp.555–568.
- Chesbrough, H.W. (2003) ‘The era of open innovation’, *Sloan Management Review*, Vol. 44, No. 3, pp.35–41.
- Cornelissen, J., Oswick, C., Christensen, L. and Phillips, N. (2008) ‘Metaphor in organizational research: context, modalities and implications for research – introduction’, *Organization Science*, Vol. 29, No. 1, pp.7–22.
- Dix, A., Finlay, J., Abowd, G.D. and Beale, R. (2004) *Human–Computer Interaction*, 3rd ed., Pearson/Prentice Hall, Harlow.
- Fauconnier, G. and Turner, M. (2002) *The Way We Think: Conceptual Blending and the Mind’s Hidden Complexities*, Basic Books, New York.
- Fillis, I. and Rentschler, R. (2008). ‘Exploring metaphor as an alternative marketing language’, *European Business Review*, Vol. 20, No. 6, pp.492–514.
- Fuller, R. (1989) ‘Probiotics in man and animals’, *Journal of Applied Bacteriology*, Vol. 66, No. 5, pp.365–378.
- Hanna, N., Ayers, D.J., Ridnour, R.E. and Gordon, G.L. (1995) ‘New product development practices in consumer versus business product organizations’, *Journal of Product & Brand Management*, Vol. 4, No. 1, pp.33–55.
- Heiskanen, E., Hyvönen, K., Repo, P. and Saastamoinen, M. (2007) *Käyttäjät tuotekehittäjinä [Users as product developers]*, Tekes, Helsinki.

- Heiskanen, E., Hyysalo, S., Kotro, T. and Repo, P. (2010) 'Constructing innovative users and user-inclusive communities', *Technology Analysis and Strategic Management*, Vol. 22, No. 4, pp.495–511.
- Heiskanen, E. and Repo, P. (2007) 'User involvement and entrepreneurial action', *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*, Vol. 3, No. 2, pp.167–187.
- Hukkinen, J. (2008) *Sustainability Networks: Cognitive Tools for Expert Collaboration in Social-Ecological Systems*, Routledge, London.
- Hunt, S.D. and Menon, A. (1995) 'Metaphors and competitive advantage: evaluating the use of metaphors in theories of competitive strategy', *Journal of Business Research*, Vol. 33, No. 2, pp.81–90.
- Hyysalo, S. (2010) *Health Technology Development and Use. From Practice-Bound Imagination to Evolving Impacts*, Routledge, London.
- Jeppesen, L.B. (2005) 'User toolkits for innovation: consumers support each other', *Journal of Product Innovation Management*, Vol. 22, No. 4, pp.347–363.
- Lagnevik, M., Sjöholm, I., Lareke, A. and Östberg, J. (2003) *The Dynamics of Innovation Clusters: A Study of the Food Industry*, Edward Elgar, Cheltenham.
- Lakoff, G. (1987) *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind*, University of Chicago Press, Chicago/London.
- Lakoff, G. and Johnson, M. (1980) *Metaphors We Live By*, University of Chicago Press, Chicago/London.
- Lakoff, G. and Johnson, M. (1999) *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*, Basic Books, New York.
- Lehrer, M. and Akasawa, K. (2003) 'Rethinking the public sector: idiosyncracies of biotechnology commercialization as motors of national R&D reform in Germany and Japan', *Research Policy*, Vol. 33, pp.921–938.
- Marketing Radar (1997) *The Familiarity and Use of Gefilus Products*, Marketing Radar Ltd., Helsinki.
- Menrad, K. (2003) 'Market and marketing of functional food in Europe', *Journal of Food Engineering*, Vol. 56, No. 2, pp.181–188.
- Metchnikoff, E. (1907) *The Prolongation of Life: Optimistic Studies*, Putnam, New York.
- Pantzar, M. and Shove, E. (2010) 'Understanding innovation in practice: a discussion of the production and re-production of Nordic Walking', *Technology Analysis and Strategic Management*, Vol. 22, No. 4, pp.447–461.
- Riquelme, H. (2001) 'Do consumers know what they want?', *Journal of Consumer Marketing*, Vol. 18, Nos. 4/5, pp.437–448.
- Salomo, S., Steinhoff, F. and Trommsdorff, V. (2003) 'Customer orientation in innovation projects and new product development success – the moderating effect of product innovativeness', *International Journal of Technology Management*, Vol. 26, Nos. 5/6, pp.442–463.
- Siegel, D., Waldman, D., Atwater, L. and Link, A. (2004) 'Toward a model of the effective transfer of scientific knowledge from academicians to practitioners: qualitative evidence from the commercialization of university technologies', *Journal of Engineering and Technology Management*, Vol. 21, Nos. 1/2, pp.115–142.
- Siró, I., Kápolna, E. and Lugasi, A. (2008) 'Functional food. Product development, marketing and consumer acceptance – a review', *Appetite*, Vol. 51, No. 3, pp.456–467.
- Slingerland, E. (2008) *What Science Offers the Humanities: Integrating Body and Culture*, Cambridge University Press, Cambridge, NY.
- Tapionlinna, U-R. (1995) *Familiarity of Gefilus Products*, Elintarviketieto – Food & Farm Facts Report (the report was commissioned by Valio for internal use).

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von Hippel, E. (1988) *The Sources of Innovation*, Oxford University Press, New York and Oxford.

von Hippel, E. (2005) *Democratizing Innovation*, MIT Press, Cambridge, MA.

Zaltman, G. and Zaltman, L. (2009) *Marketing Metaphoria. What Deep Metaphors Reveal About the Minds of Consumers*, Harvard Business Press, Boston, MA.

Notes

- 1 Gefilus[®] and LGG[®] are both trademarks registered to Valio Ltd.
- 2 Set-type yoghurt is produced when the yoghurt is fermented directly in the cup and not in, e.g., containers. The yoghurt is solid. It contrasts with stirred-type yoghurt.
- 3 Selected marketing research reports 1988–1996 and other marketing data are provided by the courtesy of the Valio company.